



A STUDY ON MATERNAL AND FETAL OUTCOME IN HEART DISEASE COMPLICATING PREGNANCY IN A TERTIARY CARE CENTRE.

Obstetrics & Gynaecology

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ABSTRACT

AIM OF THE STUDY: To study Maternal and Fetal outcome in Heart Disease Complicating Pregnancy in a Tertiary Care Center.

MATERIALS AND METHODS: 1. the present study was conducted in Government General Hospital, Kurnool, which is a tertiary care centre, over a period of July 2020 –Dec 2020.

2. Antenatal Women having Heart Disease were diagnosed by ECG, Echocardiography and chest X-Ray with abdominal shield if needed.

3. Study was done, results were tabulated and compared with other studies.

4. Cardiologist opinion was taken for each case.

Cardiovascular Disease complicates >1% of pregnancies and is a major cause of non-obstetric Maternal deaths. Medical care should begin in the Preconception period and should be cared by expert multidisciplinary teams.

KEYWORDS

multidisciplinary approach, Preconceptional counseling, Tertiary Care Center.

INTRODUCTION:

One third of Maternal Deaths in heart disease complicating pregnancies are a result of Myocardial Infarction/Ischemic Heart Disease and Peripartum Cardiomyopathy.

Other contributors (5 – 10% each) are Rheumatic Heart Disease,

Congenital Heart Disease and Pulmonary Hypertension.

Risk Factors:

1. Pregnancy itself raises the risk of Acute Myocardial Infarction by three to four fold.
2. Risk 30 times Higher for women over the age of 40 Years compared with less than 20 years of age.
3. Other Risk factors include Chronic Hypertension, Preclampsia, Diabetes, Smoking, Obesity and Hyperlipidemia.

Signs and Symptoms:

Tiredness, rising pulse rate, murmurs, shortness of breath, loss of consciousness, palpitations etc.

In tertiary centers an exercise treadmill test is first non-invasive test of choice, other tests include, ECG, Echocardiography and chest X-Ray with abdominal shield if needed.

- Cardiac disease in pregnancy is broadly divided into congenital and acquired.
- The acquired group includes Rheumatic Heart Disease, cardiomyopathies and Ischemic Heart Disease.
- In developing countries, Rheumatic Heart Disease is most common type. Mitral Stenosis is most common in Rheumatic Heart Disease.
- In developed countries cardiomyopathies and congenital heart disease are most common.
- Hemodynamic changes during pregnancy begin by first 5-8 weeks and peak in second trimester, maximum is seen during labor and immediate postpartum.
- These changes are well tolerated in a normal mother when compared to diseased heart.
- Thus pregnancy has profound effect on the patient with cardiac disease as it increases cardiac work and their combined effect may exceed the limited functional capacity of the diseased heart.
- This can precipitate congestive heart failure, pulmonary edema, also sudden death may occur.
- Fetal morbidity is due to preterm delivery and fetal growth restriction, due to their inability to maintain an adequate uteroplacental circulation.
- Fetal death is usually secondary to chronic severe or acute maternal deterioration.

- The frequency of these problems depends on the severity of functional impairment of the heart and the severity of the chronic tissue hypoxia.
- Keeping this in mind this study was undertaken in tertiary care hospital to increase knowledge about prevalence and severity of the disease so proper management and timely intervention can be done.

MATERIALS AND METHODS:

- The present study was conducted in Government General Hospital, Kurnool, which is a tertiary care centre, over a period of July 2020 –Dec 2020.
- It included antenatal women diagnosed to be having heart disease.
- The diagnosis was confirmed by ECG, Echocardiography and chest X-Ray with abdominal shield if needed.
- Cardiologist opinion was taken for each case.

Base line data recorded includes:

- Age
- Parity
- Gestational age
- Booked/Unbooked
- Type of lesion
- Time of diagnosis
- NYHA functional class
- Clinical examination -chest and cardiovascular auscultation
- Mode of delivery-Vaginal/Cesarean section
- Neonatal outcome –APGAR, Birth weight, NICU admission
- Associated complications

Patients were under strict vigilance for at least 48 hours post partum.

The patients were advised regarding the importance of rest and discharged with advice about contraception, breast feeding and penicillin prophylaxis for RHD.

RESULTS:

The total number of patients admitted for delivery during the study period was 4500. A total of 22 pregnant women with cardiac disease were included in the study. Incidence of cardiac disease at our center is 0.48%. Of these 22 patients, 13 were in the age group of 18 – 25 years (59%) and 7(32%) were in 26-30 years and 2(9%) were in 31-35 years.

Table 1. Age wise distribution

MATERNAL AGE (YEARS)	NUMBER(%)
18 -25 years	13 (59%)
26-30 years	7(32%)
31-35 years	2(9%)

Among these 22 women, 9(41%) were primigravida, 10(45%) were second gravida and 3(14%) were gravida 3 or more.

Table 2. Parity wise distribution

PARITY	NUMBER(%)
Primi	9(41%)
Gravida 2	10(45%)
Gravida more 3 and	3(14%)

Among these 22 women, 5(23%) were booked cases while remaining 17(77%) were unbooked cases.

Table 3. ANTENATAL REGISTRATION

Booked	5(23%)
Un booked	17(77%)

Among these 22 women, 13(59%) had Rheumatic heart disease, while 9(41%) had congenital heart disease. Mitral stenosis is the most common lesion among rheumatic heart disease seen in 5(23%) cases. Atrial septal defect is the most common lesion among congenital heart disease.

Table 4. Rheumatic heart disease distribution

CARDIAC LESION	NUMBER(%)
Mitral stenosis	5(23%)
MS + MR	4(18%)
PAH	2(9%)
DCMP	1(4.5%)
Post MVR	1(4.5%)

Table 5. Congenital heart disease distribution

CARDIAC LESION	NUMBER(%)
ASD	6(27%)
VSD	1(4.5%)
PDA	1(4.5%)
CORRECTED TOF	1(4.5%)

At the time of admission, 14(64%) were in NYHA I, 5(23%) were in NYHA II, 2(9%) were in NYHA III and only 1(4.5%) was in NYHA IV.

Table 6. NYHA Functional grading

COMPLICATION	NUMBER(%)
PREECLAMPSIA	3(14%)
CCF	2(10%)
ATRIAL FIBRILLATION	1(4.5%)

Table 7. Associated complications

NYHA CLASS	NUMBER(%)
CLASS I	14(64%)
CLASS II	5(23%)
CLASS III	2(9%)
CLASS IV	1(4%)

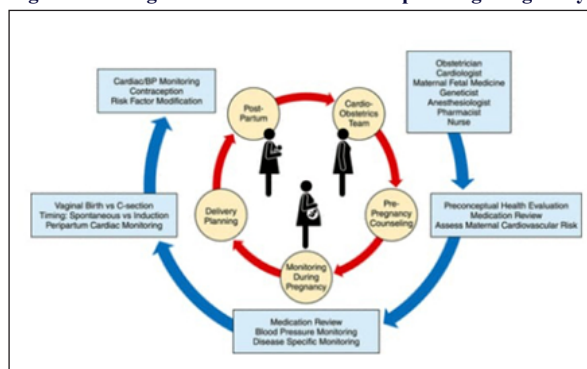
Of these 22 women, 6 delivered vaginally of which 4 were term and 2 were preterm (28-32 weeks) following spontaneous onset of labour and 16 delivered by caesarean section for various obstetric indications. Majority of the LSCS were done under spinal anesthesia, which was well tolerated, 4 cases done under epidural and 2 needed General anesthesia. All the cases were shifted to Cardiac ICU for postoperative monitoring for 48hrs.

Most of the fetuses were small for gestation 5(25%), 2(10%) with IUGR, 2(10%) being preterm and 1 IUD. 8 newborn were sent to NICU and 6 discharged healthy. Perinatal mortality being 2 (10%). Both of these deaths were due to extreme low birth weight.

Table 8. FETAL OUTCOME

SGA	5(25%)
IUGR	2(10%)
PRETERM	2(10%)

IUD	1(5%)
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Figure 1: Management of Heart Disease complicating Pregnancy

DISCUSSION

- In the present study, the incidence of heart disease complicating pregnancy is found to be 0.48% correlates with studies done by Mohan A, Mohan U, Singla R, et al^[2]
- The most common age group detected to be 18- 25yrs which is similar to study done by Indira et al^[7] in which 50% of women were of 20-25 years of age.
- The majority being second gravida similar to Prasanna et al^[10]
- Rheumatic heart disease comprised about 59%, amongst which mitral stenosis was common (23%), this was in agreement with study conducted by Bhatla Net al.^[3] and Mazhar SB et al^[6]
- Congenital lesions comprised about 41%, of which ASD was common (27%) correlates with Indira et al^[7] and Prasanna et al^[10]
- About 64% of them presented with NYHA class I, while only 4% with NYHA class IV which is similar to study by P. Sneha et al^[4]
- Most of them delivered by LSCS (73%), either elective or emergency, for various obstetric indications, most common being CPD followed by prior cesarean section whereas 76% had LSCS in the study of Alireza et al.^[5]
- 27% delivered vaginally following spontaneously onset of labour similar to Devabhaktuni Prathibha et al^[8]
- All of them were monitored closely following delivery, as there was high risk of developing complications.
- The most common cardiac complication being congestive cardiac failure, 1 landed in pulmonary edema in immediate postpartum period. All the complications were wisely managed in ICU with the help of physician, cardiologist and the anesthetist. Thus the maternal mortality was nil.
- IUGR was seen in 10% cases similar to Devabhaktuni Prathibha et al^[8] and low birth weight was seen in 25% cases similar to 29.4% in Barbosa's study^[9]. Preterm labor was seen in 10% in our study similar to Devabhaktuni Prathibha et al.^[8]

CONCLUSION

- Heart disease complicating pregnancy is considered as the high risk and utmost attention is required in the management from pre-conception to the delivery and follow up, even further. An expert supervision and management by the obstetrician along with cardiologist and fullest cooperation on the part of patient throughout antenatal, intrapartum and postpartum period results in achieving optimum maternal and fetal outcome.
- A high risk multidisciplinary team approach involving cardiologists, maternal fetal medicine specialists, and anesthesiologists in a center with experience is strongly advised for care of pregnant women with heart disease.
- Preconception counseling should be given.
- Prophylactic antibiotics should be given.
- Strict input/output chart to be maintained.
- Assisted vaginal delivery to be done to minimize cardiovascular stress.
- A joint Cardiac/Obstetric/Gynecological clinic should give advice about contraception.

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